

fore had the skeleton of a male specimen prepared, and noted the following points:—

The skull is devoid of ridges, such as are present on the snout in *M. vulgaris* and *palmata*, and the ethmoidal fontanelle is large; the fronto-squamosal arch is bony and slender; the pterygoids considerably fail to reach the maxillaries.

The ilium is suspended from the fifteenth vertebra, as in *M. vulgaris* and *palmata*, and the caudal vertebræ number 32.

EXPLANATION OF THE PLATES.

PLATE XXI.

- Fig. 1. *Rana camerani* (p. 550). Upper view.
 1 a. " " Side view of head.
 2. *Pelodytes caucasicus* (p. 551). Upper and lower view.
 2 a. " " Open mouth.

PLATE XXII.

- Fig. 1. *Salamandra caucasica* (p. 553). Upper view.
 1 a. " " Skull, upper and lower view, $\times 2$.
 1 b. " " Side view of base of tail of σ , $\times 2$.
 2. *Molge vittata* (p. 554). Side view.
 2 a. " " Skull, upper and lower view, $\times 2$.

2. Contributions to the Anatomy of Picarian Birds.—
 Part II.¹ A Note upon the Pterylosis of the Barbets
 and Toucans. By FRANK E. BEDDARD, M.A., F.R.S.,
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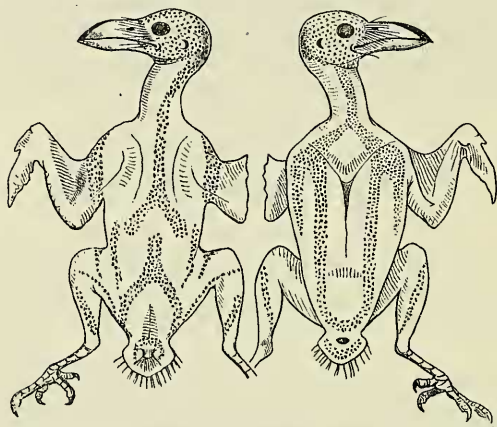
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In a short article mainly referring to the peculiar "intestini-form" gall-bladder of the Toucans and Barbets, the late Mr. Forbes took occasion to point out other resemblances between these families of birds² to each other and to the Woodpeckers. With regard to the pterylosis, however, Mr. Forbes contented himself with remarking that "Nitzsch, from pterylographical grounds. . . long ago pointed out this connection." Nitzsch undoubtedly placed in one group *Picinae*, the Barbets, Toucans, and Woodpeckers; but he included with the former in almost inextricable confusion the Bucconidæ, and furthermore observed that "this group also has no general pterylographic character, at least none belonging to itself alone." His plate fully bears out this statement to my mind. Nevertheless it seems to me that there are pterylographic likenesses between the Barbets and the Toucans: I find, in fact, that the pterylosis of such Barbets as I have had the opportunity of examining do not agree altogether with Nitzsch's figures. The species that I have studied are *Megalæma asiatica*, *M. hodgsoni*, *M. javensis*, *Cyanops franklini*, and *Xantholæma rosea*.

¹ See P. Z. S. 1889, p. 587, for Part I.

² "Note on the Gall-bladder &c. of the Toucans and Barbets," P. Z. S. 1882, p. 94.

Of these species the last only (under the name of *Bucconides roseicollis*) is figured by Nitzsch, and, as I believe, inaccurately.



Feather-tracts of *Megalema asiatica*.

The right-hand figure shows the ventral aspect, the left-hand figure the dorsal.

The accompanying drawings illustrate the pterylosis of *Megalema asiatica*. The drawings are copied from the late Prof. Garrod's MS. As will be seen on comparing them with Nitzsch's figures of *Megalema armillaris*, there are considerable differences, which of course may possibly exist between allied species. My own observations upon the first four species of my list and those of Mr. Forbes (in MS.) upon *Megalema virens* agree so entirely with each other and with Garrod's sketch that I cannot but think that Nitzsch has fallen into error.

The chief difference between us—it will be observed—concerns the spinal tract. In all the species of *Megalema* and *Cyanops* to which I have referred the posterior part of that tract is, as Nitzsch has correctly indicated, not in connection with the anterior fork; but instead of being a straight band ending at the base of the oil-gland, it forks some little way in front of that gland and surrounds it. Another peculiarity of *Megalema* (not figured by Nitzsch in *M. armillaris*) is a lateral band on either side which commences at the fork of the anterior part of the dorsal tract and runs down to a point about on a level with the middle of the posterior fork. This is quite distinct from the more conspicuous femoral tract, excepting in *M. asiatica*, where the lateral tract joins the femoral posteriorly. This lateral tract is figured by

